REMARKS

This Amendment is being filed concurrently with a Request for Continued Examination.

Claims 1-6, 14-16, 19-22, 25 and 41-43 are all the claims presently pending in the application. Claims 1-6, 14-16, 19-22 and 25 have been amended to more clearly define the invention. Claims 7-13, 17-18, 23-24 and 26-40 have been canceled and claims 41-43 have been added.

The claim amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability. Applicants also note that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

Claims 1-40 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Stephens et al. (U. S. Pat. No. 6,563,614).

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined by, for example, independent claim 1, is directed to an optical communication system for amplifying an optical signal propagating through a front optical transmission line mounted at a front stage by using an optical amplifier in an optical repeater and emitting the amplified optical signal to a back optical transmission line mounted at a back stage. The system includes a transmission line compensating device to generate control light which is input to one of the front and back optical transmission lines to produce a Raman amplification effect within the one of the front and back optical transmission lines outside of the optical repeater based on a control signal corresponding to an optical signal level input from the front optical transmission line.

Importantly, the optical amplifier is disposed between the transmission line compensating device and the other one of the front and back optical transmission lines (Application at page 8, line 4-page 9, line 8; Figure 1).

Conventional optical communication systems have optical signal characteristics which are affected by leakage of pumping light emitted from an optical repeater and a loss spectrum that is exhibited intrinsically by the optical transmission line. As the number of wavelength-multiplexed signals increase, it becomes more difficult to properly calibrate a difference in output of each signal.

The claimed optical communication system, on the other hand, has a transmission line compensating device to generate control light which is input to one of the front and back optical transmission lines to produce a Raman amplification effect within the one of the front and back optical transmission lines, and an optical amplifier which is disposed between the transmission line compensating device and the other one of the front and back optical transmission lines (Application at page 8, line 4-page 9, line 8; Figure 1). This allows the claimed invention to properly control an output of an optical signal and a loss spectrum exhibited by the optical transmission, thus enabling a high quality optical transmission line to be implemented (Application at page 11, lines 13-18).

II. THE ALLEGED PRIOR ART REFERENCE

The Examiner alleges that the Stephens teaches the invention of claims 1-40. Applicant submits, however, that Stephens does not teach or suggest each and every element of the claimed invention.

Stephens discloses an optical transmission system which includes an optical signal controller 12 for controlling a characteristic of an optical signal passing between two nodes 14 (Stephens at col. 6, lines 15-19; Figures 1-3). The controller 12 includes an optical compensation source 30 which provides power in a compensating channel λ_{ci} which is combined with an optical signal channel λ_i (Stephens at col. 7, lines 4-7).

However, Applicant respectfully submits that Stephens does not teach or suggest a transmission line compensating device which includes "*wherein said optical amplifier is disposed between said transmission line compensating device and the other one of said front and back optical transmission lines*", as recited, for example, in claim 1, and similarly recited in

claims 14 and 20.

As noted above, unlike conventional optical communication systems, the claimed system includes a transmission line compensating device to generate control light which is input to one of the front and back optical transmission lines to produce a Raman amplification effect within the one of the front and back optical transmission lines, and an optical amplifier which is disposed between the transmission line compensating device and the other one of the front and back optical transmission lines (Application at page 8, line 4-page 9, line 8; Figure 1). This allows the claimed invention to properly control an output of an optical signal and a loss spectrum exhibited by the optical transmission, thus enabling a high quality optical transmission line to be implemented (Application at page 11, lines 13-18).

Clearly, this feature is not taught or suggested by Stephens. Indeed, the Examiner attempts to equate the optical signal controller 12 with the transmission line compensation device of the claimed invention. However, this is clearly incorrect.

Specifically, the Examiner alleges that the optical controller 12 includes 24, 32, 30 (which are allegedly equivalent to a transmission line compensating device) to generate control light (e.g., optical compensate source 30 generating a compensating or control channel) (Stephens at col. 7, lines 5-8) which is input to said optical line (e.g., see Figure 4 in Stephens) for producing a Raman amplification effect (e.g., Raman amplifier 36 in Figure 4; col. 8, lines 2-3) within the optical transmission line based on a control signal (e.g., compensating channel) superimposed on the optical signal (Stephens at col. 7, lines 36-41).

However, Applicant respectfully submits that the Examiner appears to misinterpret Stephens.

In fact, in Stephens, a Raman amplification effect by a control light is not produced within an optical transmission line, but in a component device of a Raman amplifier 36 (Stephens at Figure 4; col. 8, lines 2-3) which may correspond to an optical amplifier of the claimed invention, and the control light is not input to the optical transmission line through the Raman amplifier 36. Instead, the output from the Raman amplifier 36 to the optical transmission line is not an optical signal including a control light, but an amplified optical signal as amplified

by the control light.

In contrast, in the claimed invention, a Raman amplification effect by a control light may be produced within an optical transmission line over a great distance, but not in an optical amplifier such as the Raman amplifier 36 in Stephens (Stephens at Figure 4; col. 8, lines 2-3), and therefore, the control light is input to a (e.g., one) optical transmission line, and not the other optical transmission line via an optical amplifier.

That is, with the claimed invention, the control light is not input to the other optical transmission line on the side of the optical amplifier, in the other optical transmission line on which a Raman amplification effect is not produced.

In addition, Stephens neither discloses nor suggests the present invention's feature that when the control light is sent to the **front** optical transmission line, the optical amplifier is placed (e.g., disposed) between the transmission line compensating device and the **back** optical transmission line, whereas when the control light is sent to the **back** optical transmission line, the optical amplifier is placed (e.g., disposed) between the transmission line compensating device and the **front** optical transmission line.

Thus, nowhere does Stephens teach or suggest an optical communication system including a optical amplifier disposed between the transmission line compensating device and the other one of the front and back optical transmission lines, as in the claimed invention. As noted above, these novel features of the claimed invention allow it to properly control an output of an optical signal and a loss spectrum exhibited by the optical transmission, thus enabling a high quality optical transmission line to be implemented (Application at page 11, lines 13-18).

Therefore, Applicant respectfully submits that Stephens does not teach or suggest each and every element of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant respectfully submits that claims 1-6, 14-16, 19-22, 25, and 41-43, all the claims presently pending in the Application, are patentably distinct over the

prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 8/31/05

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